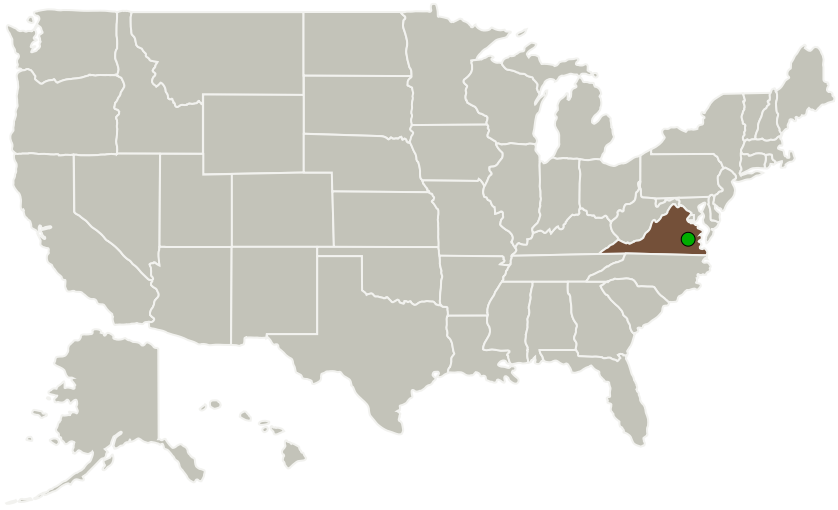
Laser Sources for Methane and Ozone Sensing for Earth Observation Science, Phase II

Completed Technology Project (2013 - 2015)

Project Introduction

This Phase II program will build and deliver a tunable single-frequency laser operating in the 1.645 micron region on optimum CH4 absorption line features. Under this program an all-solid-state parametric-converted laser will be delivered to NASA LaRC which will be suitable for acquiring range-resolved and column CH4 measurements, and compatible with integration into an airborne methane DIAL system under future programs. Due to its relative insensitivity to aerosol and cloud interferences, a DIAL system based on this pulsed laser source will be ideal for NASA investigating high-latitude CH4 releases over polar ice sheets, permafrost regions, wetlands and over open ocean during night and day. In addition the methane lidar system has commercial applications in detection of fossil fuel leaks. This development advances the laser system TRL from 3 to 5. The proposed laser is designed to be compatible with manned or UAV platforms and traceable to space=based instruments.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Fibertek, Inc.	Lead Organization	Industry	Herndon, Virginia
Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia

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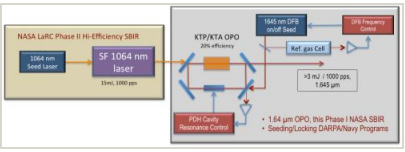
Primary U.S. Work Locations

Virginia

Images



Briefing Chart
Laser Sources for Methane and Ozone Sensing for Earth Observation Science, Phase II
(https://techport.nasa.gov/image/126930)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Fibertek, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

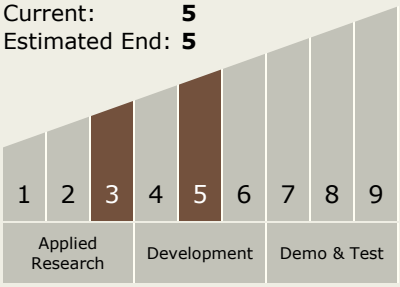
Carlos Torrez

Principal Investigator:

Timothy M Shuman

Technology Maturity (TRL)

Start: **3**
Current: **5**
Estimated End: **5**



Laser Sources for Methane and Ozone Sensing for Earth Observation Science, Phase II

Completed Technology Project (2013 - 2015)

Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.5 Lasers

Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System